DOCUMENT RESUME

ED 181 434 CS 005 213

TITLE Reading, Comprehension, and Memory Processes: Abstracts of Doctoral Dissertations Published in "Dissertation Abstracts International," July through December 1979 (Vol. 40 Nos. 1 through 6).

INSTITUTION ERIC Clearinghouse on Reading and Communication Skills, Urbana, Ill.

PUB DATE 79

NOTE 17p.

EDRS PRICE MF01/PC01 Plus Postage.

DESCRIPTORS Annotated Bibliographies; *Cognitive Processes; *Doctoral Theses; Elementary Secondary Education; Higher Education; Linguistics; *Memory; Metaphors; Readability; Reading Ability; *Reading Comprehension; Reading Processes; *Reading Research; Recall (Psychological)

ABSTRACT

This collection of abstracts is part of a continuing series providing information on recent doctoral dissertations. The 24 titles deal with a variety of topics, including the following: the influence of additional supportive context upon the reader's ability to identify the main idea of a paragraph; effects of metaphors and paraphrases as encodings of verbal information; conceptual background knowledge and young children's comprehension of discourse; semantic response latency and three long-term memory models; developmental aspects of reading comprehension readiness; a predictive model of prose processing; metaphors; the interference of some anaphoric expressions on reading comprehension; differential processing of auditory and visual information in linguistic and nonlinguistic forms; the effects of readability and directed stopping on the learning and enjoyment of technical material; memory in young children; verbal labels and the organization and retention of a series of movements in memory; interspersed organizers and comprehension of written prose; on-task adaptation of imagery with its verbal elaborations as adjuncts for prose learning; visual and symbolic representation in alphabetic letter recognition; reading and the comprehension of a text; the relationship between recognition and recall; readability and top-level structure; and paragraph structural explicitness and main idea comprehension of college students with varying abilities. (FL)

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Reading, Comprehension, and Memory Processes:

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Compiled by the staff of the

ERIC Clearinghouse on Reading and Communication Skills

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THE INFLUENCE OF ADDITIONAL SUPPORTIVE CONTEXT UPON THE READER'S ABILITY TO IDENTIFY THE MAIN IDEA OF A PARAGRAPH Order No. 7918744

AKANBI, Linda Barbara Atkinson, Ed.D. State University of New York at Buffalo, 1978. 117pp.

Objective

The purpose of this study was to identify whether additional supportive context, in the form of a preceding heading and/or paragraph, would facilitate the ability of college freshmen to identify the main idea of a target paragraph. A secondary purpose was to determine if the availability of additional context had a more facilitative effect upon the identification of implied main ideas than it does on stated main ideas.

The context variable was manipulated to form the following four treatments:

Treatment I -- Target paragraph preceded by previous paragraph

Treatment II -- Target paragraph preceded by heading

Treatment III -- Target paragraph preceded by previous paragraph and by heading

Treatment IV -- Target paragraph alone

Procedure

The subjects of the study consisted of one hundred and twenty-four (124) freshmen students enrolled in English 101 classes at Southern Illinois University-Carbondale. The subjects were randomly assigned to the four treatments.

The instrument used in the study was designed by the experimenter. It consisted of 16 factual prose passages selected from subject-area books and workbooks. Each passage consisted of two contiguously linked paragraphs. Eight of the passages contained stated main ideas and eight contained implied main ideas. The average reading difficulty level of the passages was 9-10th grade, using estimates obtained from application of the Dale-Chall Readability Formula. A multiple-choice format was used to test for the main idea. Two true-false questions were added to control for reading purpose. The subjects in each treatment were exposed to all sixteen passages.

Findings and Conclusion

No significant differences were found among the four treatments for accuracy in identifying main idea, stated plus implied. However, a significant main effect was found for the Stated vs. Implied condition, with subjects identifying more Implied main ideas correctly than Stated main ideas. It would appear that additional context for this level of reader and in the form utilized in the present study, had but minimal influence upon the identification of paragraph main ideas, generally. The findings suggest, however, that additional supportive context, particularly in the combined form of preceding paragraph plus heading, was helpful in the identification of implied main ideas in paragraphs.

EFFECTS OF METAPHORS AND PARAPHRASES AS ENCODINGS OF VERBAL INFORMATION Order No. 7926711

ANGELO, Rute Vivian, Ph.D. The Florida State University, 1979. 192pp. Major Professor: Robert M. Gagné

The study examined the effects of metaphors and paraphrases as encodings of verbal information contained in a science text through two investigations. The first investigation dealt with retention effects of verbal information presented through a concrete text, when metaphors and paraphrases are added to the text. The second investigation examined the level of retention of verbal information presented through an abstract text, when metaphors and paraphrases are added to the text. Six versions of instruction were systematically designed and formatively evaluated regarding the content, the degree of concreteness/abstractness, the level of word familiarity and the readability level. One hundred and sixty-eight high school students participated in the study. They were initially classified according to their reading comprehension level (high and low levels), then they were randomly assigned to one of the six experimental groups. A short-answer test measuring verbal information was administered. Results indicated a significant effect for both organizational strategies and reading comprehension levels (experiments 1 and 2). The analysis revealed no interactions between those factors in both experiments. The results support the hypothesis that the addition of an organizational strategy to a text improves the student's retention of the verbal information it contains. It also supports the hypothesis that different kinds of organizational strategies have a differential effect on retention of verbal information. Paraphrases were identified as more effective organizational strategies than metaphors regarding a concrete text, while metaphors contributed to a higher level of student's retention when an abstract text was used.

THE EFFECT OF CONCEPTUAL BACKGROUND KNOWLEDGE ON YOUNG CHILDREN'S COMPREHENSION OF DISCOURSE Order No. 7920087

BLATTSTEIN, Abraham, Ph.D. The University of Texas at Austin, 1979. 157pp. Supervisor: Shirley L. Menaker

The underlying perspective of this study is that comprehension of discourse entails more than the application of specific linguistic knowledge. The ability to extract meaning from a message depends on the relationship between the current input and the availability in cognitive structure of specifically relevant anchoring ideas. Thus, it is the preexisting knowledge structures that are brought to the text that enable the reader to comprehend the significance of the message. If specifically relevant ideas are either not available or their relevance is not recognized, the new material is less efficiently anchored to cognitive structure. This results in relatively unstable or ambiguous meaning which has little longevity. In this study, the effect of introducing a suitable advanced organizer on the comprehension of a difficult yet unambiguous story by young children was investigated. The organizer explicitly draws upon and mobilizes available concepts in the child's cognitive structure that are relevant for and can play a subsuming role in relation to the new material. This manipulation was expected to facilitate the adoption of only one interpretive model of the story, the one intended by the author.

The study tested the above postulate by presenting a complex

story to 36 six and seven year old girls. The difficulty level of the story intentionally surpassed the children's existing metacognitive skills for processing such a task. Half of the girls from each age group were randomly assigned to an experimental group and the other half to a control group. Prior to hearing the stimulus story, the girls in the experimental group heard a text which served as an advanced organizer, while girls in the control group heard a filler text. Comprehension of the story was assessed in two ways: 1) by having the girls recall the story in their own words, and 2) by having them answer ten inference questions which sought to determine how much of the actors' plans and goals the children understood.

Girls in the experimental group scored significantly higher on the inference questions than girls in the control group. A significant condition main effect was not found for free recall. Seven year old girls recalled significantly more propositions than six year old girls, however there was no difference with respect to performance on the inference questions. No significant age by condition interactions were found. Free recall significantly correlated with scores on inference questions in a positive linear fashion.

The results lend support to the conclusion that problems in discourse comprehension are traceable to deficits in knowledge rather than to deficits in linguistic skills. Furthermore, children can and do use experimentally provided frameworks to facilitate comprehension of prose passages as long as the frameworks are comprehensible to all ages.

THE EFFECTS OF ORGANIZATIONAL FACTORS ON MEMORY FOR PROSE Order No. 7927561

BRENTNALL, Lynn C., Ph.D. Georgia State University – College of Education, 1979. 94pp. Chairman: Warren D. Moore

Purpose

The purpose of the present study was to explore some educationally relevant instructional procedures derived from current developments in memory theory.

Research Design

A 2x3x3 multivariate analysis of variance design was used in the present study, with one stratifying variable and two independent variables. Reading ability was the stratifying variable with the following three levels: (1) high reading ability, (2) moderate reading ability, and (3) low reading ability. The first independent variable was the type of treatment, with the following three levels: (1) outlining task, (2) sentence sorting task, and (3) control group. The second independent variable was study time, with the following two levels: (1) limited study time of twenty minutes, and (2) unlimited study time.

Dependent variables. The measures used in the present study were a structured recall test and a free recall test for both immediate and delayed recall, resulting in four dependent variables.

Methods and Procedures

Subjects

One hundred thirty-two students enrolled in the fourth and fifth grades of Atherton Elementary School, Atlanta, Georgia, were used as subjects in the present study.

A reading test was administered, scored, and a grade equivalent assigned to each student according to the test norms booklet. The subjects were then rank ordered from highest reading level to lowest reading level and then divided equally into three groups: (1) high reading ability, (2) moderate reading ability, and (3) low reading ability. Each reading ability group was then randomly assigned to the six conditions: (1) outlining task with limited time, (2) outlining task with unlimited time, (3) sentence sorting task with limited time, (4) sentence sorting task with unlimited time, (5) control group with limited time, and (6) control group with unlimited time. Classroom space was provided so that each group could be separated during the study, with all groups operating at the same time. After treatments were administered, the subjects were given the structured recall test and a free recall test which comprised the immediate recall tests. The delayed recall tests were identical to the immediate recall tests and were administered one week after the immediate recall tests were given.

Statistical Analysis

A three factor multivariate analysis of variance (MANOVA) was used to analyze the data in the present study. Standardized discriminant coefficients were employed with MANOVA as well as univariate F tests to determine which of the four dependent variables best discriminated among the groups.

Conclusions and Educational Implications

The results of the present study appear to support the notion that the manipulation of organizational factors positively affect the quantity and quality of what the subjects remembered. An interesting result of this investigation relative to organizational theory is the apparent superiority of the free recall measures in comparison to structured recall measures to reflect differences in performance due to the manipulation of organizational factors during learning. This difference also appears to increase over time.

The results suggest that outlining tasks allow the individual to restructure the information in a manner in which the intersentence relationships are clearly specified and perhaps more meaningful to the subject. One of the most important educational implications from this study is that grouping and restructuring the material together in a hierarchial fashion might be profitably employed in educational practice. The data from the present study suggest that the kinds of organizational factors manipulated in the present study may affect memory for prose and serial lists in a similar manner. The educational implication of this result is that free recall measures might better reflect differences in learning outcomes for those instructional approaches emphasizing organizational factors.

SEMANTIC RESPONSE LATENCY AND THREE LONG-TERM MEMORY MODELS Order No. 7921654

DALIN, Dennis S., Ph.D. Wayne State University, 1979. 221pp.

This study is an extension of experiments designed to differentiate one single and two dual-memory models. Pellegrino, Rosinski and Siegel (1977), and Rosinski, Pellegrino, and Siegel (1977), found consistent support for the unitary human long-term semantic memory, within the information processing paradigm. However, several design limitations did not permit sufficient semantic processing time to support the developmentally consistent interpretations previously reported.

In this study three levels of semantic constraint and direct instruction to use sub-category facts were specified. Utilizing response-latency measurements in a category identification task with picture and word stimuli, the question of developmental support for one of the three semantic memory models was examined under conditions of increased processing time. The experiment was a 3x3x2x2 factorial design with repeated measures on the first three factors. These independent variables were: levels of semantic constraint, modality, grade, and response type. The dependent measure: semantic response latency required an accuracy criterion at the 90% level.

Forty 8th grade and forty 4th grade students were individually taught categorization rules, tested for rule accuracy, and evaluated with the experimental slides in three sessions. The stimulus items were randomized for all factors including the two categories: clothing and animals.

The results revealed that all the main effects were significant at the .05 level of confidence. Both the level and modality factors suggested that this study in fact replicated previous results and extended significantly the processing time. Four 1st order, two 2nd order, and the 3rd order interactions attained significance.

Among the hypotheses intended to discriminate among the three memory models, two hypotheses unequivocally supported the unitary memory model. No transfer effect was measured and a positive accessing difference was obtained, as observed in previous research. In other hypotheses consistency with the "Pellegrino" unitary model was not found. The degree of correlation between semantically matched items was only significant at 4th grade levels II and III. The pattern of slope increase for modes across levels was consistent with the Paivio II, dual-memory model for the 4th grade. Also the greatest drop in time requirements developmentally occurred within the picture-picture modality in contradiction with previous unitary-model predictions.

It was concluded that support for the unitary memory model was found under the experimental conditions of increased processing time. A theoretical information-processing stage was proposed involving individual choice of retrieval code to account for the developmental inconsistancies in the unitary-store position.

DEVELOPMENTAL ASPECTS OF READING COMPREHENSION READINESS: A STUDY OF THE INFLUENCE OF MULTIPLE CLASSIFICATION ON CHILDREN'S ABILITY TO PROCESS GRAPHIC AND PROSE MATERIALS USING VARIOUS ORGANIZATIONAL STRATEGIES Order No. 7915706

DANGEL, Timothy Richard, Ph.D. The Pennsylvania State University, 1979. 228pp. Adviser: Francis J. Di Vesta

A relationship among reading comprehension, cognitive-developmental stages, and the use of multiple classification to acquire organizational strategies for processing prose materials has been suggested. The purpose of the present study was to investigate this relationship. The following hypotheses were proposed and tested:

I. Matrix-classifiers would classify and learn stimulus materials (sentences or line drawings describing common occupations and their attributes) on the basis of two dimensions in fewer trials and with fewer errors than children identified as low matrix-classifiers. However, the performance of matrix- and low matrix-classifiers on tasks organized by a single dimension would not differ.

II. The acquisition of a matrix organization for classifying and learning stimulus materials would be more difficult than the acquisition of an organizational strategy based upon a single dimension. Furthermore, an organizational strategy based on a single, symmetrical dimension (occupation name) would be acquired more easily than a strategy based upon a single, assymetrical, hierarchical dimension (occupation attribute).

III. Low classifiers would classify and recall the content of the line drawings in fewer trials than sentences corresponding to the drawings. Classifiers would classify and recall the content of drawings and sentences with equal ease.

IV. The organizational strategy learned during acquisition trials would transfer to tasks requiring subjects to learn and to make inferences about new stimulus materials.

V. The acquired organizational strategy would be reflected in the ordering of each subject's free recall.

Second and third grade subjects identified as either matrix-classifiers or low matrix-classifiers learned to organize either sentences or line drawings by placing them into the cells of a three-by-three matrix using one of three organizational strategies (i.e., occupation names, occupation attributes, or a matrix combination of names and attributes). An error-free classification and recall of nine sentences/drawings was followed by a transfer task (a one-trial presentation and recall of nine new sentences/drawings) and an inference task (completion of the diagonal and dimension cells of a four-by-four matrix).

Classifiers required fewer trials to acquire all strategies than low classifiers. The organization most easily acquired was occupation name; the matrix organization was the most difficult to learn. Sentences and drawings were learned with equal ease; however, subjects using the attribute and matrix organizations classified drawings in fewer trials than sentences. Transfer of acquired organizational strategies to other tasks was greater for classifiers than for low classifiers. Classifiers learning a matrix organization performed best on the inference task. Subjects used occupation names to structure their learning and recall regardless of the organization used during the acquisition classification tasks.

These results extend the validity of Piagetian stage development of classification to complex, semantic materials and suggest that multiple classification underlies the processing of relationships within sentences during reading. The ability of children to classify and to learn the stimulus materials was influenced jointly by their level of matrix classification and by their ability to abstract the relevant dimensions necessary to organize the materials. A symmetrical dimension, such as occupation name, was more readily and widely adopted for structuring learning than was an asymmetrical, hierarchical dimension, such as occupation attribute. It appears that organization by concept name is more natural and is acquired earlier than organization by concept attribute.

The implications of these findings are important for reading. Success in learning to comprehend what is read requires the reader to synthesize the individual words within a sentence into a cohesive idea. The data strongly suggest that this ability is developmental. The implications of the results for reading readiness assessment, reading instruction, and the construction of reading materials should be examined.

METAPHOR: ITS EFFECT ON THE READING COMPREHENSION OF SIXTH GRADERS Order No. 7915485

ELAM, Anne Henry, Ph.D. University of Georgia, 1979. 167pp. Supervisor: Ira E. Aaron

The purpose of this study was to determine the effect of metaphor on the comprehension of textual prose. Data were collected using the sixth grade students in four elementary schools in northeast Georgia. Four sets of short, informational passages were developed by the researcher. Each set contained one version comprised of 10 metaphors and a comparable version containing the literal equivalents of the 10 metaphors. Readability levels were assessed by the Dale-Chall

formula in an attempt to control passage difficulty and to insure comparability.

Several measures were undertaken to distinguish the similarities and differences between the metaphor and nonmetaphor version of each passage. Measures of the meaningfulness associated with the linguistic subunits of each passage were obtained. The imagery value of the metaphors and their literal equivalents were rated by a panel of judges. Differences in word frequency were noted. Reliability of the passages was computed using Cronbach's coefficient alpha.

Overall reading comprehension scores from a standardized measure, the Stanford Diagnostic Reading Test, Brown Level, were used to identify those students performing at the fourth stanine and above. One hundred forty-four subjects were randomly selected to comprise the sample. Each child received a packet comprised of one version of each of the four sets of passages, two being designated as metaphor and two as nonmetaphor. Two types of multiple choice questions assessed comprehension. A correlated t test was used to determine if differences existed between scores of students reading metaphor passages and scores of students reading passages containing no metaphors in 1) overall comprehension, 2) performance on verbatim questions, and 3) performance on paraphrase questions. The statistical analysis did not produce significant results at the .05 level for any of the three tested hypotheses. Therefore, none of the hypotheses were rejected.

The results of this investigation indicate that metaphor neither aids nor interferes with the comprehension of textual prose. It appears that while the intrinsic characteristics associated with metaphorical language may enhance the aesthetic value of a passage, metaphors can be replaced by literal translations with no loss of cognitive content. Several factors must be considered when interpreting the results of these findings. It is possible that had the instrument been composed of passages written at a higher readability level requiring a greater dependence upon accurate interpretation of the metaphors, the results would have been different. It is also conceivable that the findings of the study are peculiar to this specific group of students and that the results would have been different had other subjects instructed in a different way been used in the study.

A PREDICTIVE MODEL OF PROSE PROCESSING

Order No. 7923644

GATLIN, William Hubert, Ed.D. Saint Louis University, 1979. 72pp.

This is a study of the hierarchical development of children's ability to listen to a simple story and retain what they have heard. Two hundred children between three and seven years of age were asked to listen to one of two versions of the same story, an elaborated version and an outline version. The two forms were presented alternately to the two hundred subjects. Each child was given the same post test composed of ten questions.

It was hypothesized that younger children would do better on the elaborated version of the story, that there would be a gradual age-related increase in the children's recall of either version of the story, and that children would improve in recall more rapidly on the outline version of the story.

The children did score significantly higher on the elaborated version of the story ($t = 2.95$, $p < .004$, two tailed probability). There was a significant positive relationship between age and scores on the ten questions following presentation of both the outline and the elaborated version of the story. Moreover, there was a significant difference in the average achievement of groups hearing the elaborated and outline version of the story. Analysis of covariance was used to hold constant, or remove, the effects of age on performance. The difference in average achievement was significant beyond the .999 level. The children improved at a rate of 0.12/month in recall on the elaborated version of the story and 0.14/month on the outline version of the story. This is not a significant finding but, within the range of this study, the outline form shows a greater rate of improvement in recall.

THE EFFECTS OF THREE TYPES OF METAPHOR ON SIXTH GRADE STUDENTS' READING COMPREHENSION

Order No. 7927120

GAUS, Paula Jean, Ph.D. The University of Arizona, 1979. 303pp. Director: Joseph L. Vaughan, Jr.

The purpose of this study was to investigate differences in recall of four modified passages of descriptive exposition on the topic of Appaloosa horses; one passage contained simple metaphors, one contained explicitly-cued metaphors (similes), one contained a combination of metaphors and similes (the original passage) and one contained literal language only. The passage was selected from a children's magazine.

A large group preassessment evaluation determined that subjects similar to those in the experimental study (1) had little knowledge of passage content, (2) indicated no differences existed in information contained in the four passages, (3) could respond adequately to incomplete sentences as recall probes, (4) understood metaphor-related vocabulary.

In the experimental study, sixth grade subjects were individually and randomly assigned to read one of four passages. Recall was assessed, first, by asking subjects to recall the passage; second, by asking for explanation of all initial recall topics; and finally, by presenting subjects with incomplete sentence probes. Recall was taped, transcribed, and analyzed in order to obtain a recall score.

The findings of the study follow.

1. There were no significant differences in total recall of the four experimental passages.
2. Subjects generally recalled expected informational units, i.e., units of information contained in the text.
3. No single response phase accounted for a majority of recalled information.
4. When subjects provided unexpected informational units, i.e., units of information not contained in the text, those informational units could be directly traced to prior world knowledge which supplemented or contradicted textual information. Unexpected responses occurred in response to general passage information as well as in response to target (metaphor and metaphor-equivalent literal) information.
5. In the recall of target informational units, there were no significant differences in the types, quality, or amount of information recalled across the four passages.
6. When target informational units were considered in relation to total recall, significant differences in resulting proportions were found. Generally, Metaphor and Literal Passage mean indices were significantly higher than the Explicitly-cued Metaphor Passage means. The Combined and Explicated Passage shifted inconsistently relative to other passage recall proportions.

In recall of metaphor-embedded text, the following conclusions seem justified.

1. There appear to be no significant differences in recall of text containing different forms of metaphor or literal language.
2. Subjects generally recall information which is contained in text; unexpected recall information can be related to subjects' prior world knowledge.
3. No single response format appears to permit subjects optimum opportunity for recall of text.
4. There appear to be no significant differences in subjects' recall of metaphor or metaphor-equivalent literal informational units.
5. The propensity of a reader to recall specific metaphor or metaphor-equivalent literal informational units differs according to type of passage read within this study.

The following implications may be drawn from this study.

1. Research focusing upon recall of text rather than upon recall of isolated units may produce different, and more practically valid, results.
2. Instruction in metaphor comprehension seems best integrated into general comprehension instruction, rather than isolated as a skill exercise.
3. Children's blending of prior world knowledge with textually presented information should be considered a natural phenomenon and indicative of positive growth in reading.
4. Blending of prior world knowledge with textually presented information appears to support an interactive theory of the reading process.
5. Further research into response of children to explicitly-cued metaphors (similes) seems justified.

THE INTERFERENCE OF SOME ANAPHORIC EXPRESSIONS ON READING COMPREHENSION Order No. 7919178

GOTTSDANKER, Anne Elizabeth, Ph.D. Arizona State University, 1979. 74pp.

The purpose of this study was to investigate the interference of certain anaphoric expressions (pronouns) on eighth grade students' reading comprehension. The sample consisted of 103 eighth grade students in the Phoenix metropolitan area. The subjects were administered cloze tests of anaphoric comprehension in which 0%, 33%, 66% and 100% of the pronouns were replaced by appropriate referents. The tests were scored using exact replacement criteria. In addition, for each subject reading achievement scores were obtained from district testing using Science Research Associates' Achievement Series, Reading Section, Form E, Green Level (1971). The resulting data were analyzed by means of analysis of covariance, using passage form as the independent variable, the raw score from the cloze tests as the dependent variable, and the SRA achievement reading score as the covariate. The .05 level of confidence was chosen for the statistical interpretation of the results. Research hypothesis number one, which asked if there would be significant differences among subjects' cloze scores on reading the four different forms of the passages was rejected. Research hypothesis number two, which stated that performance on the 0% cloze passage would be lower than performance on the 100% cloze passage was not rejected. Recommendations were made for the classroom teacher and for the researcher concerning students' comprehension of anaphoric expressions.

DIFFERENTIAL PROCESSING OF AUDITORY AND VISUAL INFORMATION IN LINGUISTIC AND NON-LINGUISTIC FORMS Order No. 7921234

GOURLEY, James Earl, Ph.D. The University of Oklahoma, 1979. 110pp. Chairman: Blaine Goss

This study investigated the relationship among mode, type, and length of memory in information processing. Two hundred forty undergraduate students were randomly assigned to the twelve experimental groups. Mode was defined as either the auditory or visual sensory system, type was the presentation of either linguistic or non-linguistic stimuli, and length of memory was one of three recall conditions. Short-term memory was the immediate recall of the stimulus items. Long-term memory at ten minutes was recall after the subjects had mastered the list to one hundred percent recall and waited for ten minutes. Long-term memory at forty-eight hours was recall forty-eight hours after mastery. These twelve conditions were tested with an analysis of variance technique. The stimulus list was a twelve item list of concepts that differed only in mode and/or type correspondingly appropriate to the category. The four categories were: auditory linguistic (speech), auditory non-linguistic (sounds), visual linguistic (written words), and visual non-linguistic (pictures).

The results indicated that there were differences in both mode and type using recall as a measure. All of the main effects were statistically significant as well as several interactions. The conclusions were that auditory stimuli were more easily recalled in short-term memory, non-linguistic stimuli were more readily recalled than linguistic, and most modal and type differences that appear in short-term memory are diminished in long-term memory. These three statements form the foundation of a model of information processing in which information is processed independently to a certain point providing characteristic modal differences. After that point these characteristic differences do not appear because the information has lost identification with the mode of entry.

THE EFFECTS OF READABILITY AND DIRECTED STOPPING ON THE LEARNING AND ENJOYMENT OF TECHNICAL MATERIAL Order No. 7925923

GREENE, Mark Thomas, Ph.D. The University of North Carolina at Chapel Hill, 1979. 118pp. Supervisor: Robert L. Stevenson

Previous investigations of the effects of readability indicated that the generally positive effects of readability might not exist for technical material. Further research was warranted. Richard Carter's Signaled Stopping Technique, though based on questionable assumptions, suggested a technique (directed stopping) by which an author might unobtrusively manipulate the points at which readers stop reading in order to engage in the cognitive processing of parts of the message. This technique (directed stopping) was developed and validated. The author was able to purposively induce stops to evaluate, consider and question the material being read. The effects of directed stopping and readability on the enjoyment and learning of technical material were studied in an experiment using 485 graduate and undergraduate students at The University of North Carolina at Chapel Hill. Increased readability was found to result in substantial increases in both learning and enjoyment. Directed stopping was found to have no significant effect on the enjoyment or learning of the material. Incidentally, signaled stopping was found not to be correlated with either dependent variable.

MEMORY IN YOUNG CHILDREN AS A FUNCTION OF TYPE OF ORIENTING TASK AND RETRIEVAL CUE

Order No. 7918341

HAUBER, Florence Adele, Ph.D. University of Minnesota, 1979. 86pp.

Craik and Lockhart's level of semantic processing model suggests that retention is a function of the extent to which the individual processes (encodes) the material at a semantic level: the deeper or more elaborate the level of semantic processing (encoding of "meaning" attributes) the higher the quality of the memory trace and the greater the durability of retention. Recent research has demonstrated the significance of inducing normal and mentally retarded youngsters to engage in semantic processing during the acquisition of PAs by utilizing effective orienting tasks and specific retrieval cues. There is little experimental evidence to support the proposition that long-term retention is a function of depth of processing.

The present study investigated both immediate and long-term memory performance to determine the effect of three acquisition orienting tasks and two retention retrieval cues. Sixty-six 6 year old children participated in the initial learning of 20 pairs of picture PAs. They were assigned to three different conditions: (1) Labeling; (2) Paragraph Repetition and (3) Response to "Why" questions. In the Labeling task children were asked to repeat the names of the items after the tester. Labeling induces processing to the level of representational meaning but does not provide for extended semantic or relational meaning. Children in the Paragraph Repetition task were asked to repeat two-sentence semantic paragraphs. Stimulus and response items were both included in the first sentence, with the second sentence providing "ready-made" semantic analysis and integration. These paragraphs were "yoked" to responses from the Why task in an attempt to control for both the "quality" of elaborations and numbers of elaborations between the two conditions. The question asked and the elaborations produced as answers by each child served as sentences to be repeated by a yoked child in the Paragraph Repetition condition. In the Response to Why condition, children were asked to respond to simple "why" questions. In this condition S takes an active role in semantic analysis and integration.

All Ss learned the pairs to criterion according to an adjusted learning format and were randomly assigned to two retrieval cue conditions implemented three weeks after acquisition. In Partial Visual Cue (PVC), the S was shown stimulus items in sequence and asked to repeat each name twice. In Complete Visual Cue (CVC), S was shown each of the stimulus-response picture pairs and asked to repeat both names. Ss were immediately tested for retention.

Analysis of first trial correct recall responses and number of trials to criterion derived from a Sex X Retention X Acquisition unweighted means analysis of variance indicated that Ss in the Labeling condition performed significantly poorer than Ss in the Paragraph Repetition and Why conditions ($P < .001$) which did not differ significantly. Analysis of retention correct recall responses (Sex X Retention X Acquisition unweighted means analysis of variance) showed no differences due to the orienting task encountered during initial learning. Ss did, however, consistently perform better in the CVC retrieval condition (overall mean = 18.07) than in the PVC retrieval condition (overall mean = 11.06).

The present study indicates that interacting with the material to be acquired in a manner which induces semantic processing does indeed promote initial learning. The finding that long-term retention was not effected by the orienting tasks encountered during acquisition does not support the levels of processing view. Like most other processing variables known to affect acquisition, little effect on long-term retention was found when an attempt was made to establish equivalent levels of original learning. However, retrieval cue effectiveness in long-term memory followed the expected pattern. The closer the reinstatement was to the "original" context, the more accessible the learned material.

THE EFFECTS OF VERBAL LABELS ON THE ORGANIZATION AND RETENTION OF A SERIES OF MOVEMENTS IN MEMORY

Order No. 7919077

HUSAK, William Stephan, Ph.D. Texas A&M University, 1979. 156pp. Chairman: Dr. Homer Tolson

The purpose of this study was to investigate the organization and retention in the free recall of a series of movements. Specifically, it was the purpose of this investigation to: (1) study the effects of varying verbal labels on the organization of a series of items in memory, (2) determine organizational patterns that may exist around the temporal and spatial characteristics of a series of movements; and (3) compare the effects caused by varying verbal labels on the accuracy in the free recall of a series of movements.

Methods

Three experiments were conducted to determine the effects of varying labels on the organization and retention of a movement series. In Experiment 1, 45 subjects were presented with a series of 6 movements within the memory span. Each movement was attached with a numerical label which indicated either the position it was presented in the series (temporal), the position's location from the starting point relative to the other positions (spatial) or a meaningless label (random). Subjects were then asked to reproduce the series in any manner they wished with the order and location of recall being recorded. A total of three trials were administered. Experiments 2 and 3 were similar to 1 with the exception of an increase in series lengths to 9 and 12 movements, respectively.

Results

Chi-squares and contingency coefficients indicated that organization was influenced by both the temporal and spatial characteristics of the series. Temporal labels led to a higher degree of temporal organization while spatial labels led to a higher degree of spatial organization. Multivariate analyses of variance were conducted for groups by presentation order, groups by movement distance, and groups by recall order to determine if differences existed in the retention of the movement series. The results indicated that the spatial label groups were more accurate and consistent in the recall of positions than were the random and temporal label groups.

Conclusions

Based on the results of the present study, the following conclusions were established:

(1) Verbal mediators strongly influence the manner in which movement information is organized in memory.

(2) The use of meaningful verbal labels (i.e., spatial) lead to consistent and accurate reproduction of previously presented movements.

(3) Varying series lengths lead to different retention patterns dependent upon whether the movement series was within or outside the range of the memory span.

THE EFFECTS OF INTERSPERSED ORGANIZERS ON COMPREHENSION OF WRITTEN PROSE Order No. 7919186

KOEHLER, Paul Henry, Ph.D. Arizona State University, 1979. 113pp.

Numerous studies have tested the mathemagenic hypothesis. Many have found that providing organizing questions within the text act as a way of organizing the information and helping the reader to remember more. The purpose of this study was to compare the effects of several kinds of interspersed organizers within prose passages. One group received prose passages with interspersed summary-level statements. A second group received prose passages with interspersed, summary-level multiple choice questions. A third group received prose passages with interspersed summary-level questions requiring written answers. A fourth group received prose passages with interspersed instructions to write and answer a summary-level question.

One hundred twenty children were selected from fifth grades at three schools and randomly assigned to four treatment groups for the five day study. Each group read the same passage each day followed by an identical daily posttest.

The null hypothesis stated that there would be no difference in total posttest performance or on a trial to trial basis for the treatment groups. This hypothesis was accepted following an analysis of the data by Multivariate Analysis of Variance (MANOVA). There were no significant differences among the four treatment groups on posttest performance or on a trial to trial comparison.

An analysis of the time spent on the reading tasks during the study revealed that the group receiving the summary-level, interspersed statements required the least amount of time to complete the reading tasks and performed as well as each of the other treatment groups, all of whom required more time for the reading task.

EFFECT OF IMAGERY AND PARAPHRASING ON CHILDREN'S PROSE LEARNING Order No. 7923389

LOCATELLI, Marta Lucila, Ph.D. The University of Arizona, 1979. 122pp. Director: Rosemarie A. Rosser

The effect of an induced imaginal strategy and a mental paraphrasing one on children's retention of prose was compared with two different passages varying in degree of concreteness. Concreteness was defined as the ease with which passage content was amenable to image production. The difference between passages was predetermined by having adult judges rate them in terms of imageability. The relevance of the strategy comparison was supported by previous research which suggests that retention of prose is related to the level at which materials are processed. Since semantic processing has the most beneficial effect on retention, two strategies were selected that are assumed to induce this type of processing. In addition, since induced imagery was demonstrated to increase retention of concrete materials, two passages differing in concreteness were included to allow for the examination of any interaction between strategy and type of material.

Three measures were developed to test the treatment effects: (1) a cued-recall test, (2) a recognition of meaning test, and (3) a recognition of verbatim form test. The results of each test were separately analyzed by means of analysis of covariance in which raw scores in reading comprehension were employed as the covariate.

The results indicated that subjects who read the high-concrete passage outperformed their counterparts who read the low-concrete one on all memory tasks. Moreover, although instructions did not produce a very large effect, the findings tend to support that subjects instructed to paraphrase the passage content recalled significantly more information in the immediate cued-recall test than those instructed to image the passage content, or than the control group. This effect was observed for both passages. The superiority of performance by those who read the high-concrete passage was interpreted as due to the higher imageability and comprehensibility of the content of this selection. The beneficial effect of paraphrasing observed in both passages supported the contention that processing prose at a semantic level increases retention.

ON-TASK ADAPTATION OF IMAGERY WITH ITS VERBAL ELABORATIONS AS ADJUNCTS FOR PROSE LEARNING Order No. 7926148

LEE, Gail Yong-Yin, Ph.D. University of Minnesota, 1979. 135pp.

The cognitive differences of learners in processing visual and verbal information were used to design imagery adjuncts for learning visually oriented prose materials. Three instructional management strategies tested the hypothesis that on-task adjustment of adjunct imagery materials was more effective than either pretask adjustment or conventional nonadjustment of materials. A multivariate analysis of variance, using time on-task and posttest correct score as dependent variables, resulted in a significant difference in management strategies ($p < .05$). Blocking students to high or low visual/verbal types was nonsignificant ($p > .05$). Major findings indicated that (a) on-task and the pretask management strategies were more effective than the conventional management strategy, and (b) high visual/verbal learners benefited more from the on-task management strategy than low visual/verbal learners.

THE EFFECTS OF VERBAL AND IMAGINAL MEDIATION ON LONG TERM MEMORY Order No. 7921076

MAGALIFF, Millicent R., Ph.D. Hofstra University, 1979. 137pp.

The major purpose of this study was the measurement and comparison of the relative effects of verbal mediation and imaginal mediation upon the retention and retrieval of verbal material. A secondary purpose was to examine the effects of sex and measured intelligence level upon the retention and retrieval of printed material.

An ancillary purpose was the exploration of the role of affect in retention and retrieval. A set of research questions was designed to determine the relationship of expressed interest to recall; the relationship of expressed interest to the sex of the subject; the relationship of expressed enjoyment to recall; the relationship of expressed enjoyment to the sex of the subject; and the interrelationship between expressed interest and expressed enjoyment.

The subjects were 160 sixth-grade students from a largely black, lower class school district on Long Island, in New York State. The students all fell within the measured normal intelligence range of 81–119, $\pm$51 S.D. (In this case, the range was from 75 to 133.)

On the basis of sex and measured intelligence, subjects were assigned by stratified random means to two treatment groups and a control group. Group V, Verbal, included 61 students who were directed to produce a verbal summary sentence or two after reading the stimulus material, indicating what they believed to be the most important point(s) of the article. Group I, Imaginal, included 48 students who were instructed to produce a picture representing what they believed to be the most important point(s) of the stimulus material. The Control group, C, included 51 students who copied the title of the article five times. At the conclusion of the testing session, all students were requested to write down all information recalled from the stimulus material.

An analysis of variance design was utilized to confirm or disconfirm three hypotheses related to a correlation between intelligence and recall, sex of subjects and recall, and the effect of treatments.

A Pearson Product-Moment design was utilized to determine the correlation between expressed interest and recall, expressed enjoyment and recall, expressed interest and expressed enjoyment, and the effect of the sex of subjects upon expressed interest and expressed enjoyment.

The findings indicated: (1) a significant (.48) correlation between intelligence and recall in a positive direction; (2) a significant (.22) relationship between expressed interest and recall; (3) a significant (.33) correlation between expressed interest and expressed enjoyment; and (4) a significant effect upon recall ($F=23.47$) after controlling statistically for sex and intelligence. The effect of treatments or of the control task and the relationship between sex and recall were not significant.

A STUDY OF VISUAL AND SYMBOLIC REPRESENTATION IN ALPHABETIC LETTER RECOGNITION

Order No. 7914130

PAGE, Martha Hessel, Ed.D. Rutgers University The State University of New Jersey (New Brunswick), 1978. 126pp. Chairperson: Dr. John J. Geyer

The encoding and comparison of alphabetic letters was studied in two experiments using cognitively similar tasks. Posner's letter matching task was used to isolate two levels of internal representation, visual and name. Sternberg's character recognition task was used to isolate the comparison stage from the encoding stage. Since the same 102 college students served in both experiments, correlations between experiments could be used to compare the cognitive structure of the two tasks. The two tasks were converted to a list search procedure for group administration in a classroom. In the Posner task, subjects searched for matching letter pairs. In the Sternberg task, they searched for letters matching a letter in a memorized letter set. Processing time per item was determined from the number of items searched in a fixed time.

Key findings were replicated for both tasks. With the Posner task, a processing time advantage for same-case letter pairs over opposite-case letter pairs (the Posner effect) was found which was reduced by separating the letters by two inches to obtain a spatial analogue of Posner's temporal delay condition. By means of processing time correlations between the two tasks, it was found that the Posner task has a substantial comparison time component from which the encoding stage of the task was not isolated by the Posner effect's difference measure. Posner has regarded the processing time advantage of same-case over opposite-case letter pairs as an index of the difference between visual and name encoding; under the conditions of this experiment, comparison as well as encoding time is included in this measure. The relative size of the correlations suggests that letter comparison rather than encoding, may be the dominant factor in the Posner effect.

With the Sternberg task, processing times was a linear function of memory set size; when letter contrast was reduced, the intercept increased but the slope remained approximately constant. New findings with the Sternberg task include negative correlations between slope and intercept and between change in slope and change in intercept with change in contrast. The intercept increased with decreased contrast, and the slope change appeared to be sex-dependent, increasing slightly for males and decreasing slightly for females.

Groups of visualizers and verbalizers were classified from the total subject sample. Two criteria were used separately, and the results were compared. By means of an internal criterion, subjects fast at name encoding were classified as verbalizers, and subjects slow at name encoding were classified as visualizers. Richardson's Verbalizer-Visualizer Questionnaire was used as an external criterion. Although there was only a 15% overlap of subjects in the groups selected by the two criteria, several comparisons showed that the groups were qualitatively similar.

The differences between visualizers and verbalizers helped to clarify the cognitive structure of the two tasks. The Posner effect was present in both groups but was significantly larger for the visualizers. Even habitual verbalizers tend to use encoding and comparison when two same-case letters are presented side-by-side. However, the Sternberg task indices of encoding and comparison show that the processing time advantage of the verbalizers is in the comparison stage. This finding, in agreement with the correlational analysis, shows that the Posner effect includes a large comparison time component. This finding will greatly affect the interpretation of results when the Posner task is used in the analysis of complex cognitive tasks such as reading. The conclusions of studies which have found the encoding stage to be a key factor in reading disability should be considered questionable until the tasks used as measures of encoding have been analyzed more carefully.

READING AND THE COMPREHENSION OF A TEXT: A PHILOSOPHICAL STUDY

Order No. 7927929

POLLACK, George Washington, Ed.D. Harvard University, 1979. 331pp.

A conceptual account can be given of comprehension in reading. It describes the respective roles of visual perception and semantic interpretation, of linguistic communication and the appeal to a reader's relief, and of imagination, critical thought processes, and introspective consciousness in the act of reading. It integrates themes in epistemology, philosophy of language, philosophy of mind, and cognitive psychology in developing a composite picture of the relevant reading phenomena.

The strategy can be adopted of analyzing the verbal locution 'S reads that p'. This locution is central as a representation of reading comprehension. A problem can be raised as regards perception in reading comprehension and the relation of reading to knowledge acquisition: An occurrence of visual perception admits of representation as 'S perceives that p'. The notion is suggested that 'S perceives that p' enters into the analysis of 'S reads that p'. The former is, however, of epistemic import, whereas the latter is not. Thus the proposed analysis of reading in terms of perception cannot be sustained. What accounts for reading's inability to be analyzed by reference to vision in the manner suggested? And how might the role of visual perception in reading be otherwise semantically represented?

Three analyses of 'reading that p' can be given which circumvent the difficulty. One underscores perception and meaning apprehension in reading. A type of reading activity may be distinguished which is identified with textual interpretation of an accurately literal, faithful, and authentic nature. Associated with this are various constraints pertaining to synonym substitution and disambiguation in the process of reading. An alternative proposal highlights communication and the appeal to a reader's belief. A sense of 'reading' is thus isolated which is inapplicable in relation to admittedly fictitious material. Finally, we may conceive of an analysis which depends on a distinction between perception proper, on the one hand, and non-perceptual thought which, however, emanates from perceptual processes, on the other. The reference of 'p' in 'reading that p' can be located in a content of non-perceptual cognition attaining to consciousness as a result of reading.

The locution 'S reads x' is of another meaning that 'S reads that p'. Nor does that of the latter remain constant when instantiated, variously, in, for example, 'S reads a book', 'S reads a sentence', and 'S reads a story'.

The identification of comprehension with non-perceptual thought can be seen to be compatible with the assumptions (a) of word recognition in rapid reading and (b) of a form of articulation or phonetic representation in mediating comprehension. We appeal to a distinction between conscious and unconscious cognition, and also to a graded notion of transparency in consciousness. We associate consciousness with the anatomical activation of controls of verbal behavior.

If J reads what K said, and K said that p, does J read that p or does J read that K said that p? The several analyses of 'S reads that p' vary in their implications in this regard. The issue relates to the difference between intrinsic and instrumental purposes in reading activity.

Objectives vis a vis reading education relate to critical thinking. What is the nature of critical thought in reading?

Thinking is a process associated with an object; depending upon a particular object of thought in reading, criticalness therein is of a given nature. Objects of thought in reading vary according to the several proposals as to 'reading that p'. This gives rise to a distinction between critical manner in reading and critical attitude therein. The latter is a matter of evaluation, and evaluation appeals to either internal or external standards, varying with the relevant object of thought. This can be seen to be of immense significance for concerns relative to objectives and procedures in reading instruction.

AN INVESTIGATION INTO THE RELATIONSHIP BETWEEN RECOGNITION AND RECALL Order No. 7914190

SHEA, James Francis, Jr., Ph.D. The University of Connecticut, 1979. 100pp.

The study examined the relationship between a recognition spelling test and a recall spelling test. Doubt exists whether recognition and recall require the same learning abilities. If recognition and recall do require differing learning abilities a school which changes its instructional methods solely on the basis of a single format, may in time, come to emphasize the development of certain learning abilities at the expense of other abilities. With the wide spread use of multiple choice (recognition) testing the question merited investigation.

Multiple choice (recognition) tests began to replace recall (essay) tests in the 1920's. Justification of this procedure was based in part through correlational research. High correlations between recognition and recall were reported and were interpreted by some as evidence that they were measuring the same abilities. Other studies reported low correlations and these studies specifically questioned whether recognition and recall were measuring the same abilities. The desire for objective tests and a need for instruments which could measure large groups quickly and easily proved stronger than the objections and the recognition test became widely accepted.

Three hypotheses, There will be no significant correlation between recall and recognition spelling performance, There will be no significant differences in the number of correct responses on the recall vs. the recognition spelling tests, and There will be no significant relationship in learning patterns for recall vs. recognition, were tested. Fourth and sixth grade students were administered a recognition spelling test, a recall spelling test, and The Test of Learning Processes (TLP) which yields a profile of abilities across a series of basic learning tasks. The following groups were created for the analysis: 1) grade four, 2) grade four males, 3) grade four females, 4) grade six, 5) grade six males, 6) grade six females.

The correlations between recognition and recall were strong: grade four, .87; grade four males, .87; grade four females, .86; grade six, .81; grade six males, .79; grade six females, .86. The first hypothesis was rejected. Significant differences between the number of correct responses for recognition vs. recall led to the rejection of the second hypothesis. Recall performance exceeded recognition performance in all groups.

To test the third hypothesis two multiple regression equations were computed on every group. Recognition spelling scores served as the dependent variable in one analysis and recall spelling scores served as the dependent variable in the other. The TLP scores served as the independent variable. This procedure yielded two regression equations for each group. The number and order in which the TLP variables appeared in each equation were compared using the Spearman rank correlation coefficient. In every instance the statistic did not reach significance resulting in a failure to reject the null hypothesis of no significant relationship between patterns of learning ability for recognition and recall.

The failure to reject the third hypothesis indicates that while the recognition and recall spelling scores were strongly correlated recognition and recall test formats measure differing learning abilities. Recognition format tests should not be used to measure areas where recall abilities are generally demanded. The same applies for recall formats measuring recognition ability. These findings also argue against the exclusive use of one particular test format to evaluate learning. If changes in instructional techniques are made on the basis of test scores eventually one particular set of learning abilities may develop at the expense of the other.

READABILITY AND TOP-LEVEL STRUCTURE: EFFECTS ON READING COMPREHENSION Order No. 7920502

SWANSON, Charlene Clements, Ph.D. Arizona State University, 1979. 147pp.

The purpose of this study was to examine how certain characteristics of social studies text material influence comprehension. The characteristics were readability level and the organization of the information in the passage.

Subjects were 108 ninth graders enrolled in five English classes in a public school in Mesa, Arizona. Six versions of a social studies passage on early railroads were written so that each passage had the same number of words (320) and the same content. Three readability versions were written for each of two top-level structures, adversative and attribution. Only vocabulary was manipulated to produce passages at each of the following grade level ranges: Easy, 7-8; Average, 9-10; Difficult, 11-12.

Equal numbers of high, average, and low readers were assigned to each version so that 18 subjects were in each experimental cell. Subjects were told to read the passages at their normal reading speeds and to record their reading times prior to writing their recalls.

The passages were analyzed according to Meyer's (1975) prose analysis procedure to provide a reliable means of scoring

recall protocols for the amount of information recalled. Recall protocols were also assigned a ranking score indicating the degree to which the student used the author's structure to organize the written recall. These rankings were collapsed into two categories. Scores from 1 to 5 indicated a student did not use the author's structure, while scores from 6 to 10 indicated the student did use the author's structure.

Analysis of variance, multiple regression, analysis of covariance, Tukey's HSD post hoc test, and chi square procedures were used to analyze the data. The .05 level of significance was selected for interpretation of the data.

Findings from the statistical analyses led to the following conclusions:

1. Prose passages written at readability levels approximating students' competency levels in reading had a more facilitating effect on comprehension (as measured by recall) than passages written above or below those respective competency levels.
2. The top-level structure of well-organized adversative and attribution prose passages with time order sequence had no differential effect on students' ability to recall content from such material.
3. When content was held constant across prose passages, readability level was a more critical factor affecting students' ability to recall content than top-level structure.
4. The readability level of prose had no differential effect on students' use of the author's structure to organize a recall protocol.
5. Top-level structure had no differential effect on students' use of the author's structure to organize a recall protocol.

Recommendations for further research included suggestions for future studies using the same passages under various conditions and stressed the need to incorporate the time-order organizational pattern into models of top-level structure.

A TEST OF A PARADIGM OF READING COMPREHENSION DEDUCED FROM ARISTOTLE'S PRINCIPLES OF CONSTRUCTION

Order No. 7927486

TOVINO, Michael Robert, Ed.D. State University of New York at Albany, 1979. 224pp.

This inquiry provided increased understanding of a paradigm or explanatory model of reading comprehension deduced from Aristotle's principles of construction. New knowledge about the paradigm effected that understanding and resulted from analysis of data that showed relationships among the reading skills of the paradigm. The data reflected examinees' responses to items of a multiple-choice, criterion-referenced measure developed by the investigator.

The skills of the paradigm were derived from terms and distinctions by which one might inquire into the nature of purposefully made things. A major influence on the development of the paradigm was Aristotle's four causes: final, formal, efficient, and material. As constructive causes, the final is the purpose of a made object; the formal is the shape or form of the object. The efficient is the work of the maker, the tasks necessary to produce the object; the material cause is that of which the object consists. These four causes constitute a theoretical hierarchy of construction and are stated as hypothetically necessary, "if-then" propositions. The final determines the formal: both determine the efficient: all three determine the material. When a piece of writing is considered as a purposefully made thing, the final cause is the purpose of the piece; the formal is the whole, the main argument or explanation; the efficient is the work of the writer; and the material cause is the language of which the piece consists. Writing skills of the paradigm are operations of the constructive causes. Reading skills are reciprocals of writing skills because reading skills are operations of comprehension--the process of inferring the ends and means of what is read (Finder, 1976).

Reciprocity allowed the investigator to test the paradigm by his exploring the spatio-temporal relationships among the skills of reading. If the reading skills were based on the principles of construction and were properly categorized as operations of the final, formal, and efficient causes, then examinees' performance of the skills would illustrate certain patterns. Examinees' responses involving poorly constructed passages would reflect gaps in comprehension, flaws which would not be evidenced when more effectively constructed passages were comprehended. Skills of purpose, operations of the final cause, would follow others when comprehension was performed. Operations of the efficient cause would precede others. The significant majority of the reading skills would be interdependent, would cluster before or after the final- or efficient-cause skills.

Those patterns, suggested by the hypothesized hierarchy of the reading comprehension model, were tested with input from (1) scalogram analysis (Guttman, 1943) which allowed the investigator to scale qualitative data, pass and fail categories of examinees' responses and from (2) ordering-theoretic method (Bart & Krus, 1973), which

> has as its primary intent either the testing of hypothesized hierarchies among items or the determination of hierarchies among items. (p. 291)

Data analysis dealt with two-item or -skill relationships involving examinees' failing the first item and passing the second in the two-item relationship.

The data showed that no skill was superfluous and that all but one element of the paradigm was valid. Skills of the efficient and formal causes occupied expected positions in the three submeasures of the research instrument, as did identify intended effect, a skill of purpose or operation of the final cause. Identify perceived audience occupied unexpected positions in all three submeasures, an event which suggested that this skill should be repositioned as the first skill of the efficient cause in the constructive hierarchy of causes, as the immediate determiner of the nonverbal parts: the other skills of the efficient cause. The investigator explained the reasons for that revision and stated implications for further study of the significance of the revision.

THE EFFECTS OF PARAGRAPH STRUCTURAL EXPLICITNESS ON MAIN IDEA COMPREHENSION OF COLLEGE LEVEL STUDENTS WITH VARYING ABILITIES

Order No. 7925608

WOOD, Shaila Penelope, Ph.D. Syracuse University, 1979. 134pp.

Problem

The study was designed to examine and clarify the relationship between variations in paragraph organization, relevant individual differences of college level readers, and their effects on students' performance with items designed to test main idea comprehension.

Wiener and Cromer (1967) postulated a difference model of reading difficulty: Difference readers have adequate intelligence, adequate language and vocabulary skills but fail to process materials in ways appropriate to a specific reading goal. In this study structural variations of paragraphs were used to model experimentally an hypothesized reading difficulty. Using paragraphs written at three levels of structural explicitness, the researcher sought evidence for a group of readers who have adequate vocabulary and language skills but who fail to process intersentence relationships appropriately to determine the main ideas of paragraphs. In additon, the researcher sought evidence indicating that the extent to which such relationships are made explicit affects readers' comprehension of main ideas.

Hypotheses predicted main effects for reading ability, level of structural explicitness and interactions between ability and level of structural explicitness. It was predicted that students identified as Poor Comprehenders would be more sensitive to manipulations of paragraph structure than Good Comprehenders, as measured by questions requiring identification of main ideas.

Methodology

Students were tested for reading ability using the Nelson-Denny Reading Test. Students scoring below the 25th percentile on Vocabulary as determined by national norms were excluded from the study. The Comprehension score was used to categorize readers as Good or Poor Comprehenders, corresponding approximately to upper and lower thirds of the ability distribution of the sample. Each ability group comprised 24 subjects.

Fifteen paragraphs and comprehension items were selected from published reading tests and exercise manuals designed for high school and college level readers. Each paragraph was rewritten twice: 1) to emphasize the cues signaling intersentence relationships and make the structural pattern of the paragraph explicit; and 2) to distort such cues by scrambling the sentences. Three levels of structural explicitness were thus available for each paragraph: high, middle or published, and low.

A 2 x 3 factorial design with repeated measures on one factor was used. Subjects read each of the 15 paragraphs and answered comprehension items. Each subject read five published, five low and five high explicit presentations. To control for order and sequence effects, paragraphs by structural level were randomly ordered within six test forms, and test forms were randomly distributed to subjects.

Results and Conclusions

In ANOVA for repeated measures, main effects were found for level of structural explicitness ($p < .001$) and ability ($p < .025$). No interactions were found between comprehension and level of structure. The effects of the structural variable were found to be spread evenly across the ability distribution. Secondary analyses blocking for ability at extreme fifths of the distribution and using three-level blocking showed similar results.

The results suggest support for the theoretical postulate that comprehension of main ideas is linked to structural cues. Inferences drawn from the results suggest that both good and weak readers among college level students are failing to note these cues unless they are obvious and the structural pattern of the paragraph is made explicit. Applying Cromer's model of reading difficulty, the researcher interpreted evidence as suggesting that college level students may be using other, less appropriate strategies for their efforts to comprehend main ideas.

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